MISSOURI S&T University of Science & Technology

Computer Science Seminar

Data Sharing and Search in Pervasive Computing Environments

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Abstract - In pervasive computing spaces, people and devices are integrated with the surrounding physical environment; wireless connections support opportunistic interactions between humans, the devices they wear and carry, and intelligent sensors embedded in everyday objects and natural landscapes. Data made available for use in such settings is often supplied by or about human users, and much of the data is ephemeral, originating from sensors that sample changing conditions of the environment over time. As pervasive computing become a reality, it is essential to provide new approaches to help users share data and find the information they need—in a way that reflects what is around them, right here and right now—as they move through a densely populated and rapidly changing information space.

In this talk, we will look at the push of data from data generators into a pervasive computing space and the pull of data from query issuers aiming to learn more about the pervasive computing space. First, I will present MC Designer, a toolkit that lowers the barrier for the development of crowdsensing applications, enabling users with little or no programming experience to launch large-scale spatiotemporal data collection and sharing campaigns. Second, I will present Gander, a search engine that introduces a new approach for finding spatiotemporally relevant data by leveraging proximally-available resources in the here and now.

Brief Bio - Dr. Jamie Payton is an Associate Professor of Computer Science at the University of North Carolina at Charlotte, where she is the co-director of the Wireless Networking and Sensing (WiNS) Lab. Her research interests include crowdsensing, quality of information, information acquisition protocols, and software engineering for pervasive computing environments. Dr. Payton is also committed to broadening participation in computing and advancing computer science education. She is the Director of the STARS Computing Corps, an NSF-funded alliance of 50 colleges and universities; STARS serves as a framework for integrating civic engagement into college computing departments with the goals of broadening participation of underrepresented groups in computing, recruiting K-12 students into the computing pipeline, and retaining students in computing majors. Dr. Payton is currently a visiting faculty in computer science at Missouri S&T.